THE CLAIMS

What is claimed is:

1 A golf ball comprising four or more layers, wherein one of the layers is a hoop-stress layer, comprising at least one material with a tensile elastic modulus of at least about 10,000 kpsi, situated between two of the three innermost layers.

2 The golf ball of claim 1 comprising the following layers:

a fluid-filled center;

an encapsulating shell comprising at least one layer to contain the fluid;

a hoop-stress layer comprising at least one material with a tensile elastic modulus of at least about 10,000 kpsi disposed about or within the at least one layer of the encapsulating shell;

at least one layer comprising a resilient elastomeric component disposed about the hoop-stress layer; and

a cover comprising at least one layer and being disposed about the at least one layer including a resilient elastomeric component.

3 The golf ball of claim 2, wherein the hoop-stress layer comprises a wire, thread, or filament.

4 The golf ball of claim 2, wherein the hoop-stress layer comprises glass, aromatic polyamid, carbon, metal, shape memory alloy, natural fiber, or a combination thereof.

5 The golf ball of claim 4, wherein the at least one material forming the hoop-stress layer is wound or wrapped in a criss-cross, basket weave, or open pattern.

6 The golf ball of claim 5, wherein the at least one material forming the hoop-stress layer comprises a plurality of braided elements.

7 The golf ball of claim 2, wherein the at least one material forming the hoop-stress layer has a tensile elastic modulus of at least about 20,000 kpsi.

8 The golf ball of claim 3, wherein the wire, thread, or filament has a first cross-sectional area that is coated with a binding material to create a second cross-sectional area greater than the first.

9 The golf ball of claim 2, wherein the at least one layer forming the encapsulating shell comprises two layers and the material forming the hoop-stress layer is disposed therebetween.

10 The golf ball of claim 1 comprising:

a fluid-filled center;

an encapsulating shell comprising at least one layer to contain the fluid;

at least one layer comprising a first resilient elastomeric component;

a hoop-stress layer comprising at least one material with a tensile elastic modulus of at least 10,000 kpsi disposed about or within the at least one layer of the first resilient elastomeric component;

at least one layer comprising a second resilient elastomeric component disposed about the hoop-stress layer; and

a cover comprising at least one layer and being disposed about the at least one layer including a second resilient elastomeric component.

11 The golf ball of claim 10, wherein the first resilient elastomeric component is the same as the second resilient elastomeric component.

12 The golf ball of claim 10, wherein the first resilient elastomeric component differs from the second resilient elastomeric component.

13 The golf ball of claim 10, wherein the at least one material forming the hoop-stress layer comprises a wire, thread, or filament.

14 The golf ball of claim 10, wherein the at least one material forming the hoop-stress layer comprises glass, aromatic polyamid, carbon, metal, shape memory alloy, natural fiber, or a combination thereof.

15 The golf ball of claim 14, wherein the at least one material forming hoop-stress layer is wound or wrapped in a criss-cross, basket weave, or open pattern.

16 The golf ball of claim 15, wherein the at least one material forming the hoop-stress layer comprises a plurality of braided elements.

17 The golf ball of claim 10, wherein the at least one material forming the hoop-stress layer has a tensile elastic modulus of at least about 20,000 kpsi.

18 The golf ball of claim 13, wherein the wire, thread, or filament has a first cross-sectional area that is coated with a binding material to create a second cross-sectional area greater than the first.

19 The golf ball of claim 10, wherein at least one layer comprising a first resilient elastomeric component comprises two layers and the at least one material forming the hoop-stress layer is disposed therebetween.

20 The golf ball of claim 1 comprising:

at least one core layer comprising a first resilient elastomeric component;

a hoop-stress layer comprising at least one fibrous material with a tensile elastic modulus of at least about 10,000 kpsi wound about the at least one core layer;

at least one intermediate layer comprising a second resilient elastomeric component disposed about the hoop-stress layer; and

a cover comprising at least one layer and being disposed about the at least one intermediate layer.

21 The golf ball of claim 20, wherein the first resilient elastomeric component has a compression of greater than about 50.

22 The golf ball of claim 20, wherein the first resilient elastomeric component is the same as the second resilient elastomeric component.

23 The golf ball of claim 20, wherein the first resilient elastomeric component differs from the second resilient elastomeric component.

24 The golf ball of claim 20, wherein the at least one material forming forming the hoop-stress layer comprises a wire, thread, or filament.

25 The golf ball of claim 20, wherein the at least one material forming the hoop-stress layer comprises glass, aromatic polyamid, carbon, metal, shape memory alloy, natural fiber, or a combination thereof.

26 The golf ball of claim 25, wherein the at least one material forming the hoop-stress layer is wound or wrapped in a criss-cross, basket weave, or open pattern.

27 The golf ball of claim 26, wherein the at least one material forming the hoop-stress layer comprises a plurality of braided elements.

28 The golf ball of claim 20, wherein the at least one material forming the hoop-stress layer has a tensile elastic modulus of at least about 20,000 kpsi.

29 The golf ball of claim 24, wherein the wire, thread, or filament has a first cross-sectional area that is coated with a binding material to create a second cross-sectional area greater than the first.

30 The golf ball of claim 20, wherein at least one core layer comprising a first resilient elastomeric component comprises two layers and the at least one material forming the hoop-stress layer is disposed therebetween.

31 A golf ball having four or more layers comprising:

a center;

a cover comprising at least one layer; and

a hoop-stress layer comprising at least one material with a tensile elastic modulus of at least about 10,000 kpsi, situated between two of the three innermost layers, wherein the material has a first cross-sectional area and the material is coated with a binding material to provide a coated material with a second cross-sectional area greater than the first.

32 The golf ball of claim 31, wherein the center is a solid.

33 The golf ball of claim 31, wherein the center is comprised of a fluid-filled.

34 The golf ball of claim 31, wherein the center has a diameter from about 0.5 inch to 1.55 inches.

35 The golf ball of claim 34, wherein the center has a diameter from about 1.1 inches to 1.5 inches.

36 The golf ball of claim 31, wherein the center is surrounded by an elastic wound layer.

37 The golf ball of claim 31, wherein the second cross-sectional area is at least about 5 percent larger than the first cross-sectional area.

38 The golf ball of claim 31, wherein the hoop-stress layer is comprised of a continuous strand having a diameter from about 0.004 to 0.02 inches.

39 The golf ball of claim 31, wherein the binding material comprises of thermoplastic polyvinyl butyral, thermoplastic epoxy, thermoplastic polyester phenolic, thermoplastic polyamide, thermosetting adhesive epoxy, thermoplastic polyamide-imide, or combinations thereof.

40 The golf ball of claim 31, wherein the cover material has a hardness of less than about 75 Shore D.

41 The golf ball of claim 40, wherein the cover material has a hardness of less than about 65 Shore D.